REMARKS / ARGUMENTS

1.0   Rejections under 35 U.S.C. §103(a):

The Office Action rejected claims 1-11 under 35 U.S.C. §103(a) as being unpatentable over ***Straasheijm*** (U.S. Patent 6,968,009) in view of ***Ma*** (U.S. Patent 7,072,398).

In order to deem the Applicant's claimed invention unpatentable under 35 U.S.C. §103(a), a prima facie showing of obviousness must be made. However, as fully explained by the M.P.E.P. Section 706.02(j), to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, ***to modify the reference*** or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, ***the prior art reference (or references when combined) must <u>teach or suggest all the claim limitations</u>***.

Further, in order to make a prima facie showing of obviousness under 35 U.S.C. 103(a), all of the claimed elements of an Applicant's invention must be considered, especially when they are missing from the prior art. If a claimed element is not taught in the prior art, then no prima facie case of obviousness exists. The Federal Circuit court has stated that it was error not to distinguish claims over a combination of prior art references where a material limitation in the claimed system and its purpose was not taught therein (*In Re Fine*, 837 F.2d 107, 5 USPQ2d 1596 (Fed. Cir. 1988)).

1.1   Rejection of Claims 1-11:

In the present response, Applicants have amended independent claim 1 to recite an additional limitation that is not disclosed or in any way suggested by any of the cited

references. In tested embodiments of the claimed computer executable instructions, the newly added limitation has been observed to significantly accelerate processing of MVs relative to conventional techniques, such as those described by the ***Straasheijm*** and ***Ma*** references. In particular, claim 1, as amended now recited the following limitation:

"wherein evaluating the second set of one or more candidate MVs for each block further comprises computing an error value for each candidate MV and storing that error value to a database the first time that each candidate MV is evaluated, and then retrieving that error value from the database instead of re-computing the error value whenever it is necessary to evaluate any candidate MV again when evaluating MVs in neighboring blocks;"

Support for this limitation is provided throughout the specifications and drawings of the present application (i.e., United States Patent Application 20040258154). For example, paragraph [0060] of the present application, referring to FIG. 2, explains the following:

"[0060] In addition, in a related embodiment, ***computed MV error values are stored to an array or database of evaluated MVs 260***. In operation, this ***database 260 is first checked to see if the motion vector for a particular pixel block has already been evaluated***. If it has, then the ***value is simply read back rather than wasting computer time to recompute predicted error values***. This particular embodiment ***serves to significantly increase overall system efficiency, especially since particular image blocks will be neighboring blocks to several other blocks, and could potentially be subject to having the error evaluation recomputed several times if the value were not stored***. Further, these same values are also useful for reducing the number of potential error evaluations in the third stage should it be necessary to evaluate any pixel blocks in that third stage."

Thus, in view of the newly added limitations in claim 1, Applicants respectfully suggest that the claimed computer executable instructions include elements ***not taught*** in the proposed ***Straasheijm – Ma*** combination reference. Consequently, the rejection of independent claim 1, as amended, and of dependent claims 2-11, under 35 U.S.C. §103(a) is not proper. Therefore, the Applicants respectfully request reconsideration of the rejection of claim of claims 1-11 under 35 U.S.C. §103(a) in view of the novel language of claim 1. In particular, claim 1 recites the following novel language:

"A computer-readable medium encoded with a computer program having computer executable instructions for automatically estimating a motion field for image frames in an image sequence, said computer executable instructions comprising:

evaluating a first set of zero valued motion vector (MVs) for blocks in an image frame using background detection and determining a reliability of each MV;

evaluating a second set of one or more candidate MVs for each block in the image frame for which the first set of zero valued MVs was deemed not reliable, said second set of MVs being determined using any of spatial and temporal neighbors of each of those blocks, and determining an optimal MV for each block of the second set and a reliability of each optimal MV;

wherein evaluating the second set of one or more candidate MVs for each block further comprises computing an error value for each candidate MV and storing that error value to a database the first time that each candidate MV is evaluated, and then retrieving that error value from the database instead of re-computing the error value whenever it is necessary to evaluate any candidate MV again when evaluating MVs in neighboring blocks;

evaluating a third set of candidate MVs for all blocks in the image frame having MVs that were deemed not reliable using the first or the second set of

MVs, said third set of MVs being determined using a block-based pattern search, and determining an optimal MV for each block of the third set; and

outputting an optimal MV for each block using the reliable MVs from the first, second and third sets of MVs to form a motion field for the image frame." (emphasis added)

CONCLUSION

In view of the above, it is respectfully submitted that claims 1-11 are in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of claims 1-11 and to pass this application to issue. Additionally, in an effort to further the prosecution of the subject application, the Applicant kindly invites the Examiner to telephone the Applicant's attorney at (805) 278-8855 if the Examiner has any questions or concerns.

Respectfully submitted,

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